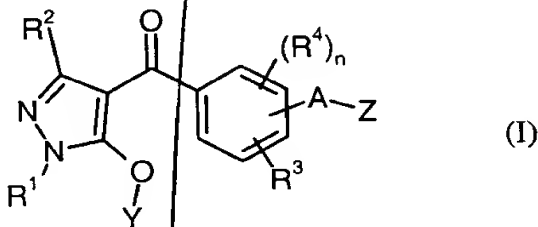


Patent Claims

1. Substituted benzoylpyrazoles of the general formula (I),



in which

n represents the numbers 0, 1, 2 or 3,

A represents a single bond or represents alkanediyl (alkylene),

R^1 represents in each case optionally substituted alkyl, alkenyl, alkynyl or cycloalkyl,

R^2 represents hydrogen, cyano, carbamoyl, thiocarbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkylthio, alkoxy carbonyl or cycloalkyl,

R^3 represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, alkylamino, dialkylamino or dialkylaminosulfonyl,

R^4 represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, alkylamino, dialkylamino or dialkylaminosulfonyl,

Y represents hydrogen or represents in each case optionally substituted alkyl, alkylcarbonyl, alkoxycarbonyl, alkylsulfonyl, alkylamino-carbonyl, dialkylaminocarbonyl, alkenyl, alkenylcarbonyl, alkenyl-sulfonyl, alkynyl, alkynylcarbonyl, cycloalkyl, cycloalkylcarbonyl, cycloalkylalkyl, phenylcarbonyl, phenylsulfonyl, phenylalkyl or phenylcarbonylalkyl, and

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Z represents an optionally substituted 4- to 12-membered saturated or unsaturated monocyclic or bicyclic heterocyclic grouping which contains 1 to 4 heteroatoms (up to 4 nitrogen atoms and optionally - alternatively or additionally - one oxygen atom or one sulfur atom, or an SO grouping or an SO₂ grouping) and which additionally contains one to three oxo groups (C=O) and/or thioxo groups (C=S) as component of the heterocycle,

including all possible tautomeric forms and the possible salts.

2. Compounds according to Claim 1, characterized in that

n represents the numbers 0, 1 or 2,

A represents a single bond or represents alkanediyl (alkylene) having 1 to 4 carbon atoms,

R¹ represents optionally cyano-, carboxyl-, carbamoyl-, halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkyl-carbonyl-, C₁-C₄-alkoxy-carbonyl-, C₁-C₄-alkyl-thio-, C₁-C₄-alkylsulfinyl- or C₁-C₄-alkylsulfonyl-substituted alkyl having 1 to 6 carbon atoms, represents in each case optionally cyano-, carboxyl-, carbamoyl-, halogen- or C₁-C₄-alkoxy-carbonyl-substituted alkenyl or alkynyl having in each case 2 to 6 carbon atoms, or

represents optionally cyano-, carboxyl-, carbamoyl-, halogen-, C₁-C₄-alkyl- or C₁-C₄-alkoxy-carbonyl-substituted cycloalkyl having 3 to 6 carbon atoms,

5 R² represents hydrogen, cyano, carbamoyl, thiocarbamoyl, halogen, represents in each case optionally cyano-, halogen- or C₁-C₄-alkoxy-substituted alkyl, alkoxy or alkoxycarbonyl having in each case up to 6 carbon atoms, represents optionally halogen-substituted alkylthio having 1 to 6 carbon atoms, or represents optionally cyano-, halogen- or C₁-C₄-alkyl-substituted cycloalkyl having 3 to 6 carbon atoms,

10 R³ represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thio-carbamoyl, halogen, represents in each case optionally halogen, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulfinyl- or C₁-C₄-alkyl-sulfonyl-substituted alkyl, alkoxy, alkylthio, alkylsulfinyl or alkyl-sulfonyl having in each case up to 4 carbon atoms in the alkyl groups, or represents alkylamino, dialkylamino or dialkylaminosulfonyl having in each case up to 4 carbon atoms in the alkyl groups,

20 R⁴ represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, represents in each case optionally halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulfinyl- or C₁-C₄-alkylsulfonyl-substituted alkyl, alkoxy, alkylthio, alkylsulfinyl or alkylsulfonyl having in each case up to 4 carbon atoms in the alkyl groups, or represents alkylamino, dialkylamino or dialkylaminosulfonyl having in each case up to 4 carbon atoms in the alkyl groups,

25 Y represents hydrogen, represents in each case optionally cyano-, carboxyl-, carbamoyl-, halogen- or C₁-C₄-alkoxycarbonyl-substituted alkyl, alkylcarbonyl or alkoxycarbonyl having in each case up to 6 carbon atoms, represents in each case optionally halogen-substituted

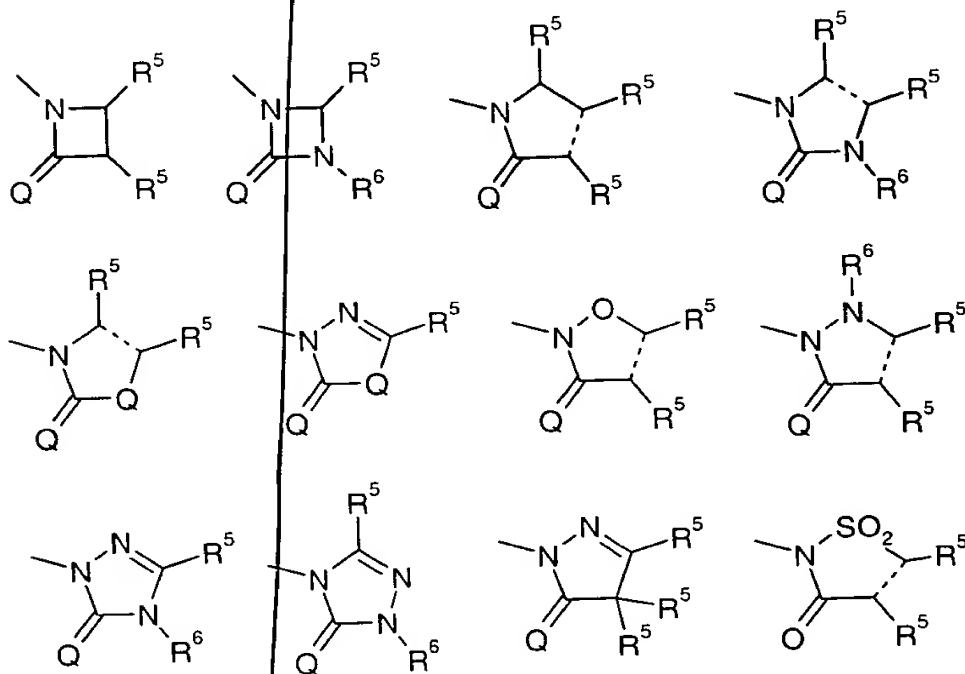
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alkylsulfonyl, alkylaminocarbonyl or dialkylaminocarbonyl having in each case up to 6 carbon atoms in the alkyl groups, represents in each case optionally cyano-, carboxyl-, carbamoyl-, halogen- or C₁-C₄-alkoxy-carbonyl-substituted alkenyl, alkenylcarbonyl, alkynyl or alkynylcarbonyl having in each case 2 to 6 carbon atoms, represents optionally halogen-substituted alkenylsulfonyl having up to 6 carbon atoms represents in each case optionally cyano-, halogen- or C₁-C₄-alkyl-substituted cycloalkyl, cycloalkylcarbonyl or cycloalkylalkyl having in each case 3 to 6 carbon atoms in the cycloalkyl groups and optionally 1 to 3 carbon atoms in the alkyl moiety, or represents in each case optionally nitro-, cyano-, carboxyl-, carbamoyl-, halogen-, C₁-C₄-alkyl-, C₁-C₄-halogenoalkyl-, C₁-C₄-alkoxy- or C₁-C₄-halogenoalkoxy-substituted phenylcarbonyl, phenylsulfonyl, phenyl-C₁-C₄-alkyl or phenylcarbonyl-C₁-C₄-alkyl, and

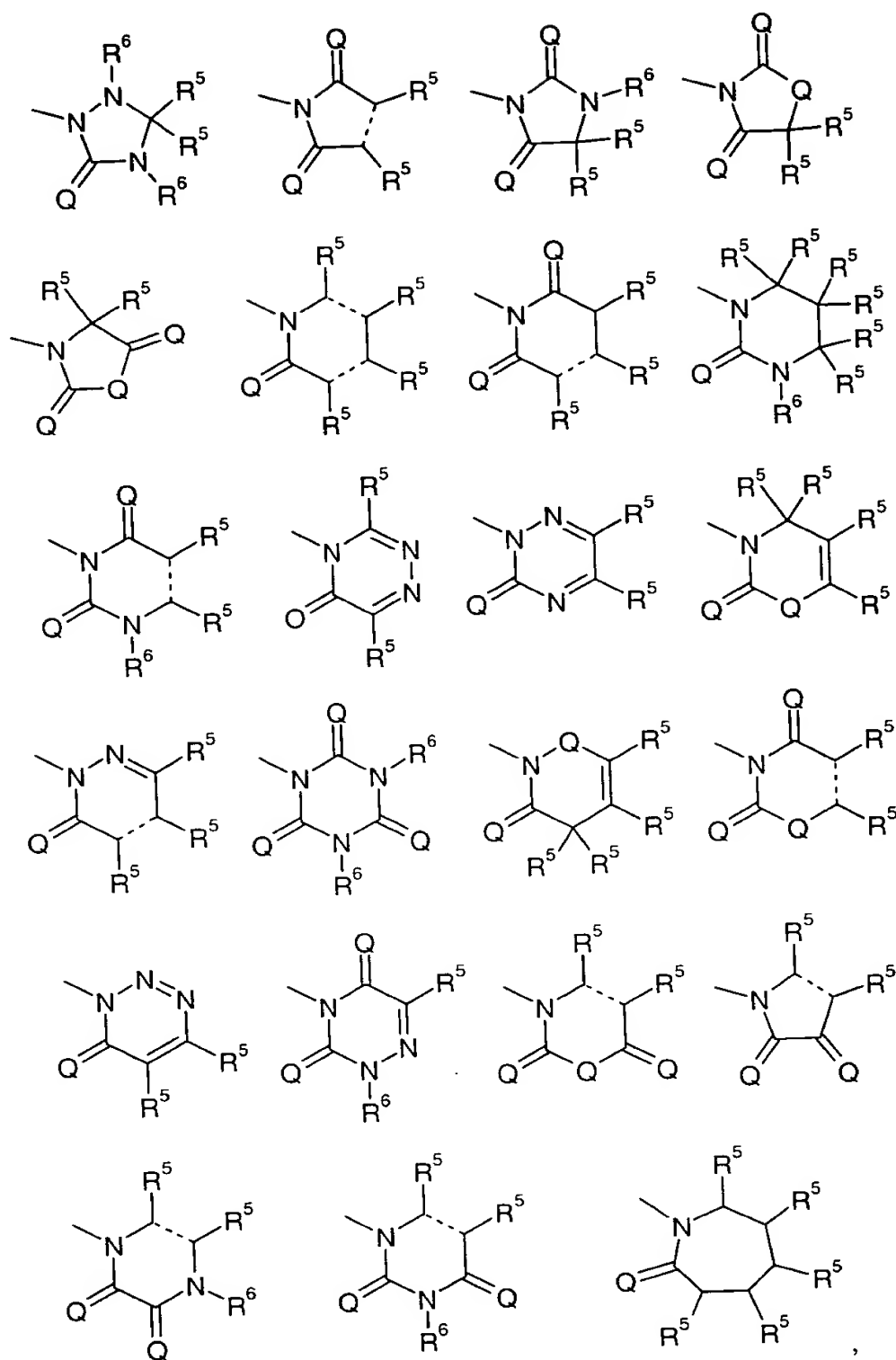
Z represents one of the heterocyclic groupings below



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in which in each case the broken bond is a single bond or a double bond,

Q represents oxygen or sulfur,

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R⁵ represents hydrogen, hydroxyl, mercapto, cyano, halogen, represents in each case optionally cyano-, halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulfinyl- or C₁-C₄-alkylsulfonyl-substituted alkyl, alkylcarbonyl, alkoxy, alkoxy-carbonyl, alkylthio, alkylsulfinyl or alkylsulfonyl having in each case up to 6 carbon atoms in the alkyl groups, represents propadienylthio, represents in each case optionally halogen-substituted alkylamino or dialkylamino having in each case up to 6 carbon atoms in the alkyl groups, represents in each case optionally halogen-substituted alkenyl, alkynyl, alkenyloxy, alkenylthio or alkenylamino having in each case up to 6 carbon atoms in the alkenyl or alkynyl groups, represents in each case optionally halogen-substituted cycloalkyl, cycloalkyloxy, cycloalkylthio, cycloalkylamino, cycloalkylalkyl, cycloalkylalkoxy, cycloalkylalkylthio or cycloalkylalkylamino having in each case 3 to 6 carbon atoms in the cycloalkyl groups and optionally up to 4 carbon atoms in the alkyl moiety, represents in each case optionally halogen-, C₁-C₄-alkyl- or C₁-C₄-alkoxy-substituted phenyl, phenyloxy, phenylthio, phenylamino, benzyl, benzyloxy, benzylthio or benzylamino, represents pyrrolidino, piperidino or morpholino, or - if two adjacent radicals R⁵ and R⁵ are located on a double bond - together with the adjacent radical R⁵ also represents a benzo grouping, and

30
R⁶ represents hydrogen, hydroxyl, amino, alkylideneamino having up to 4 carbon atoms, represents in each case optionally halogen- or C₁-C₄-alkoxy-substituted alkyl, alkoxy, alkylamino, dialkylamino or alkanoylamino having in each case up

to 6 carbon atoms in the alkyl groups, represents in each case optionally halogen-substituted alkenyl, alkynyl or alkenyloxy having in each case up to 6 carbon atoms in the alkenyl or alkynyl groups, represents in each case optionally halogen-substituted cycloalkyl, cycloalkylalkyl or cycloalkylamino having in each case 3 to 6 carbon atoms in the cycloalkyl groups and optionally up to 3 carbon atoms in the alkyl moiety, or represents in each case optionally halogen-, C₁-C₄-alkyl- or C₁-C₄-alkoxy-substituted phenyl or benzyl, or together with an adjacent radical R⁵ or R⁶ represents optionally halogen- or C₁-C₄-alkyl-substituted alkanediyl having 3 to 5 carbon atoms,

where the individual radicals R⁵ and R⁶ - if a plurality of these are attached to the same heterocyclic groupings, may have identical or different meanings within the scope of the above definition.

3. Compounds according to claim 1 or 2, characterized in that

n represents the numbers 0 or 1,

A represents a single bond, methylene, ethylidene (ethane-1,1-diyl) or dimethylene (ethane-1,2-diyl).

R¹ represents in each case optionally fluorine-, chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, methylthio-, ethylthio-, n- or i-propylthio-, methylsulfinyl-, ethylsulfinyl-, n- or i-propylsulfinyl-, methylsulfonyl-, ethylsulfonyl-, n- or i-propylsulfonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, represents in each case optionally fluorine-, chlorine- or bromine-substituted propenyl, butenyl, propinyl or butinyl, or represents in each case optionally cyano-, fluorine-,

chlorine-, bromine-, methyl- or ethyl-substituted cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl,

5 R² represents hydrogen, cyano, carbamoyl, thiocarbamoyl, represents in each case optionally cyano-, fluorine-, chlorine-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, methoxy, ethoxy, n- or i-propoxy, methoxycarbonyl, ethoxycarbonyl, n- or i-propoxycarbonyl, represents in each case optionally fluorine- and/or chlorine-substituted methylthio, ethylthio, n- or i-propylthio, or represents in each case optionally cyano-, fluorine-, chlorine-, bromine-, methyl- or ethyl-substituted cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl,

10 R³ represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, fluorine, chlorine, bromine, iodine, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, methylthio-, ethylthio-, n- or i-propylthio-, methylsulfinyl-, ethylsulfinyl-, methylsulfonyl- or ethylsulfonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-substituted methoxy, ethoxy, n- or i-propoxy, represents in each case optionally fluorine- and/or chlorine-substituted methylthio, ethylthio, n- or i-propylthio, methylsulfinyl, ethylsulfinyl, n- or i-propylsulfinyl, methylsulfonyl, ethylsulfonyl, n- or i-propylsulfonyl, or represents methylamino, ethylamino, n- or i-propylamino, dimethylamino, diethylamino, dimethylaminosulfonyl or diethylaminosulfonyl,

25 R⁴ represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, fluorine, chlorine, bromine, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, methylthio-, ethylthio-, n- or i-propylthio-, methylsulfinyl-, ethylsulfinyl-, methylsulfonyl- or

ethylsulfonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-substituted methoxy, ethoxy, n- or i-propoxy, represents in each case optionally fluorine- and/or chlorine-substituted methylthio, ethylthio, n- or i-propylthio, methylsulfinyl, ethylsulfinyl, n- or i-propylsulfinyl, methylsulfonyl, ethylsulfonyl, n- or i-propylsulfonyl, or represents methylamino, ethylamino, n- or i-propylamino, dimethylamino, diethylamino, dimethylaminosulfonyl or diethylaminosulfonyl,

R⁵ represents hydrogen, hydroxyl, chlorine, bromine, methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, difluoromethyl, dichloromethyl, trifluoromethyl, trichloromethyl, chlorodifluoromethyl, fluorodichloromethyl, fluoroethyl, chloroethyl, difluoroethyl, dichloroethyl, fluoro-n-propyl, fluoro-i-propyl, chloro-n-propyl, chloro-i-propyl, methoxymethyl, ethoxymethyl, methoxyethyl, ethoxyethyl, methoxy, ethoxy, n- or i-propoxy, n-, i-, s- or t-butoxy, fluoroethoxy, chloroethoxy, difluoroethoxy, dichloroethoxy, trifluoroethoxy, trichloroethoxy, chlorofluoroethoxy, chlorodifluoroethoxy, fluorodichloroethoxy, methylthio, ethylthio, n- or i-propylthio, fluoroethylthio, chloroethylthio, difluoroethylthio, dichloroethylthio, chlorofluoroethylthio, chlorodifluoroethylthio, fluorodichloroethylthio, methylsulfinyl, ethylsulfinyl, n- or i-propylsulfinyl, methylsulfonyl, ethylsulfonyl, n- or i-propylsulfonyl, dimethylamino, propenylthio, butenylthio, propinylthio, butinylthio, cyclopropyl, cyclopropylmethyl, cyclopropylmethoxy, phenyl or phenoxy,

R⁶ represents amino, methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, methoxy, ethoxy, methylamino, dimethylamino, cyclopropyl or cyclopropylmethyl, or together with R⁵ represents propane-1,3-diyl

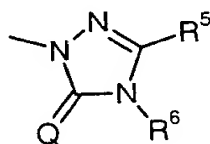
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(trimethylene), butane-1,4-diyl (tetramethylene) or pentane-1,5-diyl (pentamethylene), and

Y represents hydrogen, represents in each case optionally cyano-, fluorine-, chlorine-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, acetyl, propionyl, n- or i-butyroyl, methoxycarbonyl or ethoxycarbonyl, represents in each case optionally fluorine-, chlorine- and/or bromine-substituted methylsulfonyl-, ethylsulfonyl-, n- or i-propylsulfonyl-, n-, i-, s- or t-butylsulfonyl-, methylaminocarbonyl, ethylaminocarbonyl, n- or i-propylaminocarbonyl, dimethylaminocarbonyl or diethylaminocarbonyl, represents in each case optionally fluorine-, chlorine- or bromine-substituted propenyl, butenyl, propenylcarbonyl, butenylcarbonyl, propenylsulfonyl, butenylsulfonyl, propinyl, butinyl, propinylcarbonyl or butinylcarbonyl, represents in each case optionally cyano-, fluorine-, chlorine-, methyl- or ethyl-substituted cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cyclopropylcarbonyl, cyclobutylcarbonyl, cyclopentylcarbonyl, cyclohexylcarbonyl, cyclopropylmethyl, cyclobutylmethyl, cyclopentylmethyl or cyclohexylmethyl, or represents in each case optionally nitro-, cyano-, fluorine-, chlorine-, bromine-, methyl-, ethyl-, n- or i-propyl-, n-, i-, s- or t-butyl-, trifluoromethyl-, methoxy-, ethoxy-, n- or i-propoxy-, difluoromethoxy- or trifluoromethoxy-substituted phenylcarbonyl, phenylsulfonyl, benzyl or phenylcarbonylmethyl.

4. Compounds according to any of claims 1 to 3, characterized in that

Z represents the grouping below



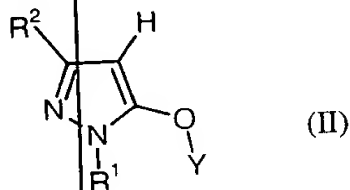
5. Compounds according to any of claims 1 to 4, characterized in that

Q represents oxygen.

5 6. Compounds according to any of claims 1 to 5, characterized in that n represents 0.

7. Process for preparing compounds according to any of claims 1 to 6, characterized in that

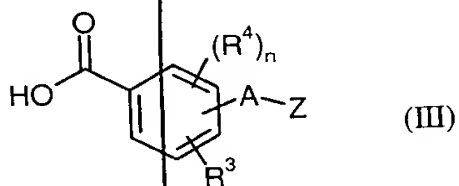
(a) pyrazoles of the general formula (II)



in which

15 R^1 , R^2 and Y are as defined in any of claims 1 to 3,

are reacted with substituted benzoic acids of the general formula (III),



20 in which

n, A, R^3 , R^4 and Z are as defined in any of claims 1 to 6,

25 in the presence of a dehydrating agent, if appropriate in the presence of one or more reaction auxiliaries and if appropriate in the presence of a diluent,

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R2c1c[nH]c(R1)c1OY (II)

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$$\text{X}-\text{C}(=\text{O})-\text{C}_6\text{H}_3(\text{R}^3)(\text{R}^4)_n-\text{A}-\text{Z} \quad (\text{IV})$$

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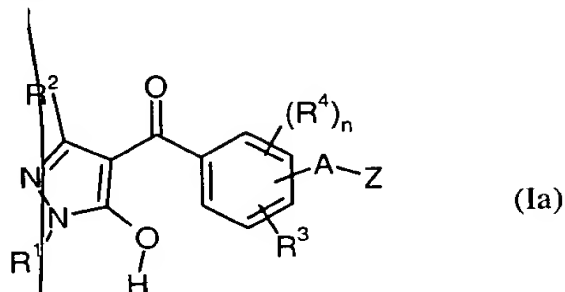
X represents cyano, halogen or alkoxy,

20

25

or that

(c) substituted benzoylpyrazoles of the general formula (Ia)



in which

n , A , R^1 , R^2 , R^3 , R^4 and Z are as defined in any of claims 1 to 6,

are reacted with compounds of the general formula (V)



in which

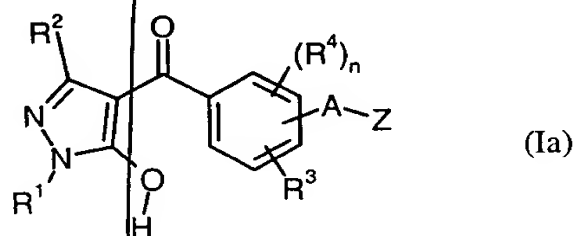
Y is as defined in any of claims 1 to 4, except for hydrogen,

- or, if appropriate, with corresponding isocyanates or isothiocyanates -

if appropriate in the presence of one or more reaction auxiliaries and if appropriate in the presence of a diluent,

and, if appropriate, the resulting compounds of the formula (I) are subsequently subjected in a customary manner to electrophilic or nucleophilic and/or oxidation or reduction reactions within the scope of the definition of the substituents, or the compounds of the formula (I) are converted in a customary manner into salts.

8. Compounds of the general formula (Ia)



in which

n, A, R¹, R², R³, R⁴ and Z are as defined in any of claims 1 to 6.

9. Herbicidal compositions, characterized in that they comprise at least one of the compounds according to any of claims 1 to 6 and customary extenders.
10. Use of at least one compound according to any of claims 1 to 6 for controlling undesirable plants.

- 5 R^4 represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, alkylamino, dialkylamino or dialkylaminosulfonyl,
- 10 Y represents hydrogen or represents in each case optionally substituted alkyl, alkylcarbonyl, alkoxycarbonyl, alkylsulfonyl, alkylaminocarbonyl, dialkylaminocarbonyl, alkenyl, alkenylcarbonyl, alkenylsulfonyl, alkynyl, alkynylcarbonyl, cycloalkyl, cycloalkylcarbonyl, cycloalkylalkyl, phenylcarbonyl, phenylsulfonyl, phenylalkyl or phenylcarbonylalkyl, and
- 15 Z represents an optionally substituted 4- to 12-membered saturated or unsaturated monocyclic or bicyclic heterocyclic grouping which contains 1 to 4 heteroatoms (up to 4 nitrogen atoms and optionally - alternatively or additionally - one oxygen atom or one sulfur atom, or an SO grouping or an SO₂ grouping) and which additionally contains one to three oxo groups (C=O) and/or thioxo groups (C=S) as component of the heterocycle,

and also to processes for their preparation and to their use as herbicides.